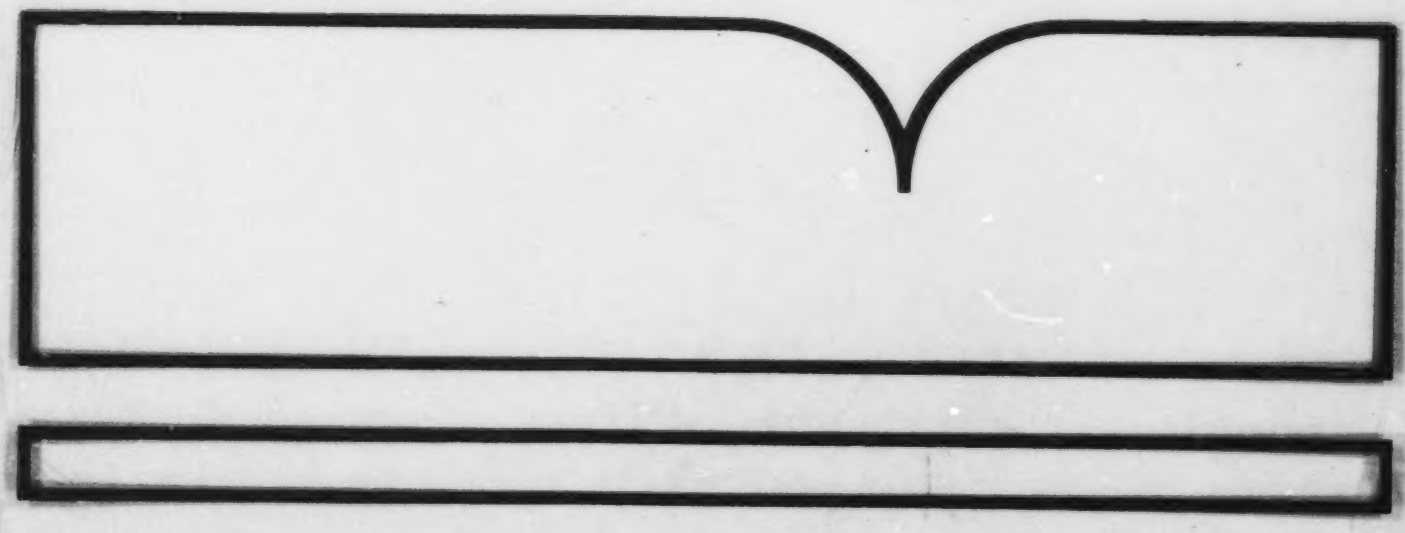
PB85-213627

# Superfund Record of Decision (EPA Region 1) Re-Solve, Inc. Site, Massachusetts, July 1982

(U.S.) Environmental Protection Agency
Washington, DC

1 Jul 82



U.S. Department of Commerce
National Technical Information Service

United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R01-82/004
July 1982

PB85-213627

EPA

# Superfund Record of Decision:

# Re-Solve Site, MA

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16. ABSTRACT

The Re-Solve, Inc. site was used as a solvent reclamation facility for approximately 24 years until operations ceased in 1980. High concentrations of PCB's, volatile organics and heavy metals have been measured. These contaminants are migrating off-site via surface runoff and ground water. The contaminated ground water plume is migrating towards a recreational pond which drains into a lake designated as a secondary water supply for the City of Fall River. In addition, the site is located over an aquifer which serves as a recharge area for a portion of the Town of North Dartmouth where a new municipal well is scheduled to be installed.

The cost-effective remedial action for this site includes: removing contents of four unlined lagoons, soil from "hot spots", and soil from a former oil spreading area for disposal off-site at a RCRA approved facility. Capping of the entire 6-acre site is also included. The estimated capital cost for the selected alternative is $3,050,000. Annual operation and maintenance costs were estimated to be $36,000.

Key Words: Ground Water Contamination; Health Risk; No Action Alternative; On-Site Containment; Ground Water Table; Leachability Tests; Off-Site Disposal; Waste Stabilization

17. KEY WORDS AND DOCUMENT ANALYSIS

| a. DESCRIPTORS | b. IDENTIFIERS/OPEN ENDED TERMS | c. COSATI Field/Group. |
|---|---|---|
| Record of Decision<br>Re-Solve Site, MA<br>Contaminated media: gw, sw, soil<br>Key contaminants: PCBs, VOCs, metals | | |

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ROD ISSUES ABSTRACT

Site: Re-Solve, Massachusetts

Region: I

AA, OSWER
Briefing Date: July 1, 1983

## SITE DESCRIPTION

The Re-Solve, Inc. site was used as a solvent reclamation facility for approximately twenty four years until operations ceased in 1980. High concentrations of PCB's, volatile organics and heavy metals have been measured. These contaminants are migrating off-site via surface runoff and ground water. The contaminated ground water plume is migrating towards a recreational pond which drains into a lake designated as a secondary water supply for the City of Fall River. In addition, the site is located over an aquifer which serves as a recharge area for a portion of the Town of North Dartmouth where a new municipal well is scheduled to be installed.

## SELECTED ALTERNATIVE

The cost-effective remedial action for this site includes: removing contents of four unlined lagoons, soil from "hot spots", and soil from a former oil spreading area for disposal off-site at a RCRA approved facility. Capping of the entire 6-acre site is also included. The estimated capital cost for the selected alternative is $3,050,000. Annual operation and maintenance costs were estimated to be $36,000.

## ISSUES AND RESOLUTIONS

1. Initial screening rejected the no action option because the site posed a significant risk to health as a result of direct contact, inhalation, and continuous leaching into ground water. Microbial treatment was ineffective. In situ containment was deemed technically infeasible because of highly fractured bedrock, and a high water table.

## KEY WORDS

- Ground water Contamination
- Health Risk
- No Action Alternative
- On-site Containment

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ISSUES AND RESOLUTIONS

2. Of the three remining options, the excavation/stabilization/on-site containment alternative was rejected because leachability tests indicated that while metals and PCB's were bound, organics would continue to leach. The two remaining options were construction of a RCRA landfill on the site, and off-site disposal in a RCRA landfill. Of these, excavation and off-site disposal was selected despite the fact that it was slightly more expensive than construction of an on-site landfill. This decision was based on the fact that the materials on the site were highly contaminated. Reliability of any on-site containment was questionable due to among other things, a highly fluctuating seasonal ground water table and the fact that the site is over the recharge area of an aquifer used for drinking water in the area.

KEY WORDS

- Ground Water Contamination
- Ground Water Table
- Leachability Tests
- Off-Site Disposal
- On-Site Containment
- Waste Stabilization

Record of Decision
Remedial Action Selection

Site: Re-Solve, North Hixville Road
North Dartmouth, Massachusetts

Analysis Reviewed:

I have reviewed the following documents describing the analysis of cost-effective remedial actions developed for the Re-Solve site:

- Remedial Investigation and Feasibility Study for Re-Solve, Inc. Hazardous Waste Site, Dartmouth, Massachusetts, Camp, Dresser & McKee, Inc., May 25, 1983.

- Staff summaries and additional information developed in response to public inquiries at two meetings held in Dartmouth on June 1, and June 8, 1983.

Description of Selected Option:

- Removal of the contents of four unlined lagoons and soil from "hot spots" and a former oil spreading area for disposal off-site at a facility in compliance with Subtitle C of the Resource Conservation and Recovery Act.

- Capping of the entire 6-acre site to eliminate the potential for direct contact with the PCB-contaminated soils which will remain on-site and to ensure surface water runoff to minimize contaminants from further percolation into the groundwater.

Declarations:

Consistent with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the National Contingency Plan, I have determined that the transport and disposal off-site of hazardous substances and site capping remedy is cost-effective and that it effectively mitigates and minimizes damage to, and provides adequate protection of public health, welfare and the environment. I have also determined that the action being taken is appropriate when balanced against the need to use Trust Fund money at other sites. In addition, I have determined that the off-site transport of hazardous substances is more cost-effective than other remedial actions and, therefore, consistent with section 101(24) of CERCLA.

Lee M. Thomas, Acting Assistant
Administrator
Office of Solid Waste and
Emergency Response

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Re-Solve, Inc.
Remedial Action Briefing Document

- The Re-Solve, Inc. site was used as a solvent reclamation facility for approximately 24 years, activities terminating in 1980. The most recent owner performed some site closure activities such as barrel removal, building demolition, and covered the site with an unknown volume of sand before declaring bankruptcy in 1981.

- On June 19, 1981, Massachusetts Department of Environmental Quality Engineering (DEQE) requested Superfund assistance for this site.

- In October, 1981, Re-Solve, Inc. was placed on the interim list of 115 priority waste sites proposed for CERCLA funding.

- On July 26, 1982, EPA released a Remedial Action Master Plan (RAMP) prepared by the zone contractor, Camp, Dresseer & McKee (CDM).

- On December 30, 1982, Re-Solve, Inc. was placed 156 on the Proposed National Priorities List of 419 hazardous waste sites published in the Federal Register.

- On May 25, 1983, Region I released the remedial investigation and feasibility study for public review and comment.

- On June 1, and June 8, 1983, Region I held public meetings at the Dartmouth Town Hall to receive comment on the proposed remedial alternatives. The meetings were well attended and all proceedings were tape recorded for future consideration.

- On June 14, 1983, a meeting of 172 potential responsible parties was held at Horticultural Hall, Boston, MA to begin negotiations to determine whether or not any responsible party was willing and able to undertake remedial design and construction. The parties were given a short deadline, to present their proposals. If the proposals are inadequate or if the work cannot be undertaken on a timetable equivalent or faster than ours, an enforcement release for design and construction will be given immediately.

- The schedule for work calls for design by the Corps of Engineers to be completed by August 1, 1983, and implementation of construction by November 15, 1983. If weather conditions permit, construction will be complete by January 15, 1983. The off-site feasibility study will be completed by the Fall 1983, and implementation of the recommended option by Spring 1984.

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Remedial Implementation
Alternative Selection
Re-Solve, Inc. Site
North Dartmouth, Massachusetts

## BACKGROUND

On May 25, 1983, the Boston regional office of EPA released the "Preliminary Remedial Investigation and Feasibility Study for Re-Solve, Inc. Hazardous Waste Site, Dartmouth, Massachusetts" prepared by the consulting firm of Camp Dresser & McKee Inc. Copies of the report were distributed by the Town's Hazardous Waste Coordinator to the members of the Board of Health and Selectmen. Copies were also placed in the Town library, Town offices and in the neighboring town of Westport. In addition, a copy of the study was delivered to each of the two abutting property owners.

Press releases and notices were placed in the local newspapers announcing the availability of the study and announcing two public meetings to be held on June 1, 1983, and June 8, 1983, respectively. The purpose of the June 1, 1983, meeting was to present the findings of the study and to discuss the remedial options which have been considered. The purpose of the June 8, 1983, meeting was to receive input from the affected community on the recommended alternatives and receive public input on the selection of the remedial action. Both public meetings were tape recorded and these tapes are available through the regional office for review.

## FEASIBILITY STUDY ALTERNATIVES

The object of the feasibility study was to develop source control remedial actions which would reduce and/or eliminate the off-site migration of contaminants and eliminate the existing direct contact hazards at the site emanating from four unlined lagoons and a former oil spreading area. The results of the remedial investigation have indicated that contaminants have migrated off the site via surface runoff and ground water. The concentrations of contaminants on-site are very high and most notably PCB's are in the thousands of ppm range, volatile organics in the hundreds of ppm range and heavy metals as high as 6%. A plume is moving towards a recreational pond known as Cornell Pond which drains into a lake designated as a secondary water supply for the City of Fall River. In addition, the site is located over an aquifer which serves as a recharge area for a portion of the Town where a new municipal well is scheduled to be installed within the year. The town is currently purchasing water from a neighboring town on an interim basis and must develop future

supplies adequate to serve the town's needs.

The primary sources of contamination at the site that must be addressed by remedial alternatives are:

(1) Four unlined lagoons in the northern portion of the site
(2) A former cooling pond area filled with sand
(3) An oil spreading area in the western portion of the site
(4) Other contaminated soil areas ("hot spots")

The initial list of remedial actions considered included:

No action
Black topping the entire site
Microbiological treatment
Excavation of hazardous substances and stockpiling
Containment/Isolation
Excavation, treatment and encapsulation onsite,
Excavation, treatment (on/off-site) and off-site disposal
Combinations of the above

The initial screening of alternatives focused on the geologic conditions and other characteristics of the site, the types and concentrations of contaminants, and the ability of the alternatives to effectively mitigate the threat to public health, welfare or the environment. The primary features of the site are highly fractured bedrock, a high ground water table and high concentrations of PCB's, volatile organics and heavy metals. The site has been found to be a continuous source of chemical contamination to the adjacent wetlands and surface water bodies. PCB's are migrating over the surface of the soil by physical forces such as surface runoff and weathering.

The initial screening resulted in rejecting many of the alternatives. As documented in the attached Health and Risk Assessment, there is a significant risk to public health through direct contact, inhalation, and/or dermal exposure from wind blown particulates. The continuous leaching of contaminants from the site to the environment threaten potential contamination of water supplies. The no action alternative was rejected because of the health hazards and the availability of feasible alternatives. Partial action such as stockpiling or black topping was determined not to be sufficient to prevent continuous environmental degradation. The mixture of wastes in such high and toxic concentrations made the option of microbial treatment ineffective. We determined that any form of insitu containment or isolation would not be technically feasible because of the highly fractured bedrock and high ground water table.

The results of the initial screening identified two alternatives as being technically feasible to mitigate the threat to public health, welfare or the environment. The two alternatives were presented at a public meeting on June 1, 1983, and are described as follows:

1. Excavation of hazardous substances, treatment on site, and encapsulation
2. Excavation, transport and disposal off-site of hazardous substances, and site capping

Alternative 1 (excavation, treatment on site, and encapsulation) was further described as a waste stabilization/fixation process in which the contaminated materials once excavated and solidified are chemically and mechanically stable. These solid materials would then be placed on a two-foot clay lined base with a leachate collection system and storage. Any leachate collected would be minimal in volume and transported by truck to a treatment facility. A four-foot separation between high groundwater and the bottom of the wastes would be maintained and the final slope of the site once fully encapsulated would be 10%. This remedial action is estimated to have a capital cost of $1,854,000, a present worth 20-year cost of $2,270,000, and have an annual operation and maintenance cost of $48,500.

Alternative 2 (excavation, off-site disposal, and site capping) involves several off-site disposal options such as: incineration (of the lagoon contents); solidification or fixation prior to shipment to a disposal facility; or fixation, treatment and disposal at an off-site facility. Approximately 3100 cubic yards of lagoon waste and 3900 cubic yards of contaminated soils will need to be removed from the site. It is anticipated that 5 trucks per day will be loaded and sent from the site for a period of 70 to 90 days. After the contaminants have been removed from the site, clean fill will be brought in, the site graded and a final cap placed over the site. This alternative is estimated to cost $3,050,000 and have a 20-year present worth of $3,360,000 and an annual operation and maintenance cost of $36,000.

As a result of comments received at the June 1 public meeting, CDM was tasked to perform various leachability tests described in the EPA manual - Guide to the Disposal of Chemically Stabilized and Solidified Waste (September, 1980) on the solidified sludge. A sample of the wastes was solidified by the Solid Tek (Morrow, Georgia) process. The tests performed included:(1) an organic EP Toxicity Scan;(2) a PCB EP extract; and(3) a modified EP extraction for volatile organics. The results showed that the metals and PCB's were bound by the process but that the organics did leach out. As a result of these tests, the stabilation of the contaminants on the site would not be a reliable alternative and the more extensive containment system would be necessary.

In addition and in response to comments received at the June 1, 1983, meeting, a 7th option was developed that would provide a more extensive containment system.

The assumptions used for the more extensive containment system option are as follows:

- Double liner system (synthetic/clay)
- Leachate collection above each liner
- Clay cap
- Minimum of 10 feet between the high groundwater and the bottom of the wastes
- Integrated layer of peat between the waste material and the first liner to retard the waste movement
- No solidification of wastes
- Segregation of sludge/soil waste from the seasonal high ground water table as follows:

  2' of clay
  WASTE
  1' of gravel
  6" of peat
  1' of sand
  1' of underdrain system
  2' of clay synthetic liner
  1' of underdrain system
  2' of clay/synthetic liner
  10' of clean fill
  High groundwater mark

The estimated costs for this remedy are: $2,205,000 capital costs, $3,020,000 20-year present worth, and $88,000 annual operation and maintenance costs.

The following table is a summary of the capital, annual operation and maintenance, and present worth costs for each alternative

| ALTERNATIVE | CAPITAL | ANNUAL O&M | PRESENT WORTH |
|---|---|---|---|
| 1. Excavation, treatment on site, and encapsulation | $1,854,000 | $48,500 | $2,270,000 |
| 2. Excavation, off-site disposal and capping | $3,050,000 | $36,000 | $3,360,000 |
| 3. Excavation, more extensive containment | $2,205,000 | $88,000 | $3,020,000 |

COMMUNITY INVOLVEMENT

Many questions were asked about the effectiveness of solidification especially on PCB's and organic wastes. A Selectman for the town stated that only off-site disposal would be technically adequate to protect the underlying aquifer which served the town's well (now closed) and which will be used for a future well site.

He did not believe that the town would accept solidification and capping because of the possibility that leaching of contaminants could occur in 20 to 30 years. He indicated that the town did not wish to rely exclusively on the Commonwealth's operation and maintenance because in 20 to 30 years the political climate could be significantly changed. He was concerned that any failure of the cap or solidification process would mean an excessive burden to the town in years to come.

Similar concerns were voiced by several of the residents present. One abutting property owner stated that she was in favor of on-site encapsulation instead of off-site disposal because she did not wish the truck traffic and decontamination procedures to potentially disfigure her property.

At the second public meeting, fifteen people testified and all but one supported off-site disposal as the final remedial action. In addition, 9 written statements were received and 7 supported off-site and 2 supported on site encapsulation without solidification. Copies of the written comments received are attached and the registration forms of the speakers. The public comments received tended to reiterate four major points:(1) that the nature of the site itself is illsuited for onsite remedy because of the high groundwater table, adjacent wetlands, river and brook, acidic soils, and use of the underlying aquifer for water supplies;(2) that solidification is still unproven technology and in this case had been found not to bind the organics;(3) that there is a general lack of confidence in the long term ability of the State to perform adequate operation and maintenance particularly of advanced technical solutions and; and (4)that off-site disposal to another area of the country better suited for hazardous waste disposal is the most reliable decision.

RECOMMENDED ACTION

Section 300.68(j) of the National Contingency Plan (NCP) [47FR 31180, July 16, 1983] states that the apppropriate extent of remedy shall be determined by the lead agency's selection of the remedial alternative which the agency determines is cost-effective (i.e., the lowest cost alternative that is technologically feasible and reliable) and which effectively mitigates and minimizes damage to and provides adequate protection of public health, welfare, or the environment. Based on our evaluation of the cost-effectiveness of each of the proposed alternatives, the comments received from the public, the additional information supplied by our consultant in response to the public comments received at the first meeting, and information received from the state, we recommend the excavation, transport and off-site disposal of hazardous substances and site capping as the source control remedial action.

Our reasons for this recommendation are that there are physical site characteristics which limit true effectiveness of solidification or encapsulation as the final onsite remedy. These limitations are a highly fluctuating seasonal groundwater table, low lying adjacent wetlands and private water wells which draw on the underlying aquifer. The results of the solidification leaching tests showed that the organic compounds did not bind in the solidified mass. With organic concentrations in the hundreds of ppm range, we believe that encapsulation is inadequate to protect such a water sensitive area. The extensive public comment received in support of off-site disposal for these reasons further justifies the additional expenditure of funds for removal of 7000 cubic yards of material. Also, the additional expenditure provides a much more reliable cleanup and eliminates the potential to further contaminate a public water supply.

STATE INPUT

After giving careful consideration to the cost-effectiveness of each alternative and evaluation of the public comments, the Massachusetts Department of Environmental Quality Engineering recommends excavation, transport and off-site disposal of hazardous substances and site capping. A letter confirming the State's concurrence with this recommendation is attached.

PROPOSED ACTION

We request your approval of the offsite disposal remedy. Our shedule calls for design by the Corps of Engineers to be completed by August 1, 1983, with construction to proceed by November 15, 1983, and completion of this source control remedy by January 15, 1984. The following actions need to be completed to initiate these activities:

1. Enter into a Superfund State Contract.

2. Develop an Interagency Agreement with the Corps of Engineers for design and construction activities.